



# Introduction to the Building Structure

All of us live in different kinds of buildings. Notice how each building has a different form — house, school, shopping mall, picture hall, hostel, hospital, cricket stadium, office, etc. Buildings serve various needs of the society — primarily as shelter from weather, security, living space, privacy, to store belongings and to comfortably live and work.

Hence, we can conclude that a building is a man-made structure with a roof and walls standing more or less permanently in one place.

Buildings come in a variety of shapes, sizes and functions. A building structure consists of two parts — superstructure and substructure. A structure constructed above the plinth level is termed as a *super structure* and a structure constructed below the ground level is termed as a *sub-structure*.

Following are the elements (Fig.1.1) of building structures:

- (i) Foundation
- (ii) Plinth
- (iii) Roof
- (iv) Wall
- (v) Floor
- (vi) Doors and windows

- (vii) Staircases
- (viii) Arches and Lintels

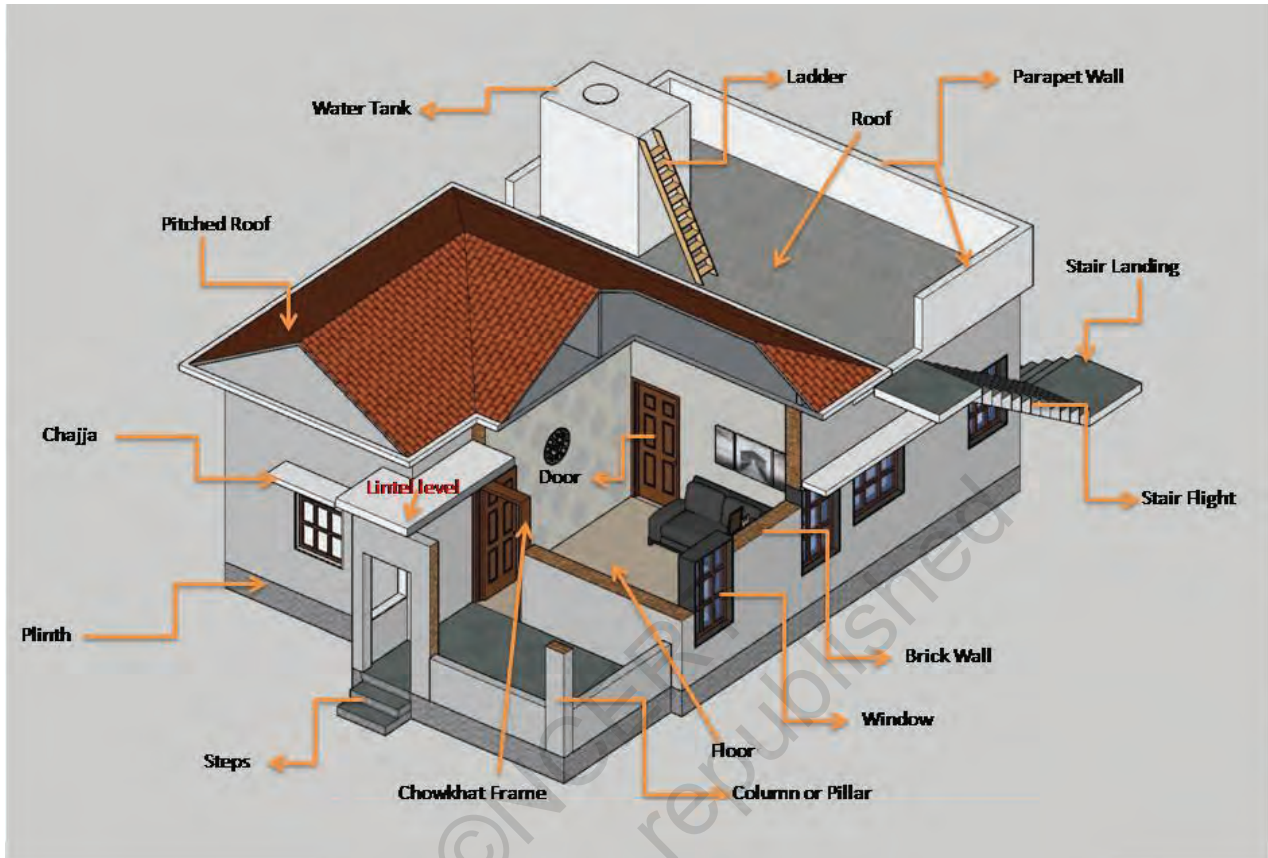


Fig:1.1: Typical Section of Building Showing Different Elements

Now that we have familiarised ourselves with the various elements of a building structure from the above drawing, let us understand what each of them mean.

**(a) Foundation:** bears the total load of the structure and transfers it to the hard soil strata. In this type of structure, the foundation provides stability to the structure.

**(b) Plinth:** is the portion between the super structure and sub-structure. It is a horizontal finished level above ground level which consists of earth filling, rubble soling, Plain Cement Concrete (PCC), etc.

**(c) Wall:** is the structure that demarcates an area from another area and encloses sides of a room. They provide privacy and safety. Walls also divide the structure into parts, generally called rooms.

**(d) Floor:** is a horizontal part of the superstructure constructed on the ground. A well-constructed floor enables easy and smooth movement. For ground floor, the top surface of plinth is covered with hard finishing material like cement, mosaic or tiles.

**(e) Roof:** is a part that is built on top of the structure. It protects the structure from different weather conditions. It also acts as a partition between vertical floors. Reinforced Cement Concrete (RCC) slab is also used for making roofs and consists of cement concrete and adequate steel bars.

**(f) Staircase:** is a sequence of stairs or steps and it is provided to afford the means of ascent and descent between floors and landings.

**(g) Arches and Lintels:** an arch is a structure that is a pillar, post, or wall. Whereas, a lintel is a beam or support at the top of a door or window, that carries the weight of a structure.

### Practical Activity

#### Activity 1

Visit a school building and identify the different building components and draw them.

#### Material required

Writing material and a scale

#### Procedure

- Visit a school building site
- Identify the components of the building and make a list
- Draw the figures of building components

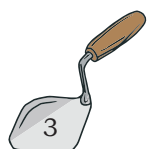
### Check Your Progress

#### A. Short answer questions

1. List the components of a building structure.
2. Differentiate between super-structure and substructure components of a building.
3. Explain the importance of foundation and roof.

#### B. Fill in the blanks

1. \_\_\_\_\_ is the lowermost part of the building.
2. \_\_\_\_\_ encloses the sides of a room.



## NOTES

3. \_\_\_\_\_ is a portion between the super structure and the sub-structure.
4. A building structure consists of two parts \_\_\_\_\_ and a sub-structure.

### C. Define

1. Plinth
2. Wall

### D. Multiple choice questions

1. Construction of \_\_\_\_\_ is to protect the structure from rain.  
(a) lintel (b) arch  
(c) roof (d) wall
2. Structure constructed above the plinth level is termed as \_\_\_\_\_.  
(a) superstructure (b) wall  
(c) sub-structure (d) foundation
3. The function of a wall is to provide \_\_\_\_\_.  
(a) privacy (b) partition  
(c) approach to next room (d) (a) and (b) Both.
4. Which of the following is not an element of a building?  
(a) foundation (b) plinth  
(c) wall (d) soil
5. For the smooth movement of people we construct \_\_\_\_\_ horizontally.  
(a) wall (b) roof  
(c) beam (d) floor
6. Landing is always constructed with a \_\_\_\_\_.  
(a) wall (b) arches  
(c) lintels (d) staircase

